



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/810,410	03/26/2004	Ismail Lakkis	45389.000011.CIP1	8912
23562	7590	09/12/2005	EXAMINER	
BAKER & MCKENZIE PATENT DEPARTMENT 2001 ROSS AVENUE SUITE 2300 DALLAS, TX 75201			FAN, CHIEH M	
			ART UNIT	PAPER NUMBER
			2638	

DATE MAILED: 09/12/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/810,410

Applicant(s)

LAKKIS, ISMAIL

Examiner

Chieh M. Fan

Art Unit

2638

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 26 March 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-38 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-6, 8-13, 15-28, 31-34, 37 and 38 is/are rejected.
- 7) ☒ Claim(s) 7, 14, 29, 30, 35 and 36 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 26 March 2004 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

## DETAILED ACTION

### *Drawings*

1. The drawings are objected to because the clocked comparator in Fig. 41 should be numbered **4110** and the baseband circuitry should be numbered **4112** (see paragraph 0223 of the specification). Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

### ***Specification***

2. The disclosure is objected to because of the following informalities: "the output if comparator 4110" in line 7 of paragraph 0223 should be changed to --- the output of comparator 4110 ----.

Appropriate correction is required.

3. The specification is objected to as failing to provide proper antecedent basis for the claimed subject matter. See 37 CFR 1.75(d)(1) and MPEP § 608.01(o). Correction of the following is required: The specification never teaches that the combiner is passive as recited in claims 28 and 34. A proper antecedent basis for the claimed subject matter is required.

### ***Claim Objections***

4. Claims 9-12 and 25-36 are objected to because of the following informalities:

Regarding claim 9, "the filter configured" in line 2 should be changed to --- the filter of the radio receiver configured --- so as to improve the clarity of the claim.

Regarding claim 10, "the filter" in line 2 should be changed to --- the filter of the radio receiver --- so as to improve the clarity of the claim.

Regarding claim 11, "the filter" in line 1 should be changed to --- the filter of the radio receiver --- so as to improve the clarity of the claim.

Regarding claim 12, "the filter" in line 1 should be changed to --- the filter of the radio receiver --- so as to improve the clarity of the claim.

Regarding claim 25, "combine it" in line 9 should be changed to --- combine the RF signal --- so as to improve the clarity of the claim.

Regarding claim 29, it appears that "configured t be" in line 3 should be changed to --- configured to be ---.

Regarding claim 31, "receive a RF signal and combine it" in line 9 should be changed to --- receive the amplified and filtered RF signal and combine the amplified and filtered RF signal --- so as to improve the clarity of the claim.

Regarding claim 35, it appears that "configured t be" in line 3 should be changed to --- configured to be ---.

Appropriate correction is required.

### ***Claim Rejections - 35 USC § 112***

5. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

6. Claim 17 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 17 recites the limitation "the analog-to-digital converter" in line 2. There is insufficient antecedent basis for this limitation in the claim. It appears that claim 17

should depend on claim 10. Further, the limitation "the data bits base don't eh" in line 3 is not understood, which render the scope of the claim indefinite.

***Claim Rejections - 35 USC § 102***

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

8. Claims 1 and 6 are rejected under 35 U.S.C. 102(b) as being anticipated by Hiller et al. (U.S. Patent No. 4,632,124, "Hiller" hereinafter).

Regarding claim 1, Hiller teaches a radio receiver, comprising: an envelope detector (5 in Fig. 1) configured to detect the amplitude of a received signal and generate a waveform representative of the envelope of the received signal; and a sign detector (11 in Fig. 1) configured to determine a sign associated with a data bit encoded on the received signal.

Regarding claim 6, the sign detector comprises a limiter configured to generate a resulting bit stream (col. 5, lines 50-55, that is, the sign detector limits the output between 0 and 1).

***Claim Rejections - 35 USC § 103***

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

10. Claims 2-5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hiller et al. (U.S. Patent No. 4,632,124, "Hiller" hereinafter) in view of Beigel et al. (U.S. Patent No. 5,235,326, "Beigel" hereinafter).

Regarding claims 2-4, Hiller teaches the claimed subject matter, including an A/D converter (17 in Fig. 9) coupled to the envelope detector, but does not teach a low-pass filter coupled between the envelope detector and the A/D converter. However, it is well known in the art to filter the output of an envelope detector with a low-pass filter so as to remove undesirable noise and thereby improve the quality of envelope detection. Beigel teaches a low-pass filter (150 in Fig. 1) coupled between an envelope detector (145 in Fig. 1) and an A/D converter (165 in Fig. 1). Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to couple a low-pass filter between the envelope detector and the A/D converter of Hiller, so as to improve the detection quality.

Regarding claim 5, Beigel further teaches DC removal (155 in Fig. 1)

11. Claims 8, 13, 15-21 and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hiller et al. (U.S. Patent No. 4,632,124, "Hiller" hereinafter) in view of Hwang et al. (U.S. Patent No. 6,142,946, "Hwang" hereinafter).

Regarding claim 8 and 13, Hiller teaches a medical ultrasound system that meets the claimed subject matter (see the rationale applied to claims 1 and 6 above), but does not an antenna, a filter and an amplifier. Hwang teaches a wireless medical ultrasound system that eliminates the probe cable, which offers an utmost convenience for the clinician and patient (col. 2, lines 3-5). The wireless medical ultrasound system comprises an antenna (514 in Fig. 7b), a filter (512 in Fig. 7b) and an amplifier (528, 526 in Fig. 7b). Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to incorporate an antenna, a filter and an amplifier as claimed into the system of Hiller for the advantage of utmost convenience for the clinician and patient.

Regarding claim 15, the amplifier is a low noise amplifier (526 in Fig. 7b).

Regarding claim 16, the filter coupled to the antenna is a band-pass filter (512 in Fig. 7b).

Regarding claim 17, Hwang further teaches a base-band processor (520 in Fig. 7b).

Regarding claim 18, as explained above, Hiller in view of Hwang teaches the step of receiving a RF signal (514 in Fig. 7b of Hwang), generating a waveform based on the envelope (5 in Fig. 1 of Hiller) and detecting a sign (11 in Fig. 1 of Hiller).



Regarding claim 19, Hiller in view of Hwang teaches the step of filtering (512 in Fig. 7b of Hwang) and amplifying (526, 528 in Fig. 7b of Hwang).

Regarding claim 20, see the rationale applied to claim 16.

Regarding claim 21, see the rationale applied to claim 15.

Regarding claim 24, see the rationale applied to claim 17.

12. Claims 9-12, 22 and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hiller et al. (U.S. Patent No. 4,632,124, "Hiller" hereinafter) in view of Hwang et al. (U.S. Patent No. 6,142,946, "Hwang" hereinafter) as applied to claim 8 above, and further in view of Beigel et al. (U.S. Patent No. 5,235,326, "Beigel" hereinafter).

Regarding claims 9-11, Hiller in view of Hwang teaches the claimed subject matter, including an A/D converter (17 in Fig. 9 of Hiller) coupled to the envelope detector, but does not teach a low-pass filter coupled between the envelope detector and the A/D converter. However, it is well known in the art to filter the output of an envelope detector with a low-pass filter so as to remove undesirable noise and thereby improve the quality of envelope detection. Beigel teaches a low-pass filter (150 in Fig. 1) coupled between an envelope detector (145 in Fig. 1) and an A/D converter (165 in Fig. 1). Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to couple a low-pass filter between the envelope detector and the A/D converter of Hiller/Hwang, so as to improve the detection quality.

Regarding claim 12, Beigel further teaches DC removal (155 in Fig. 1)

Regarding claims 22 and 23, as explained above, Hiller in view of Hwang and further in view of Beigel teaches the step of low-pass filtering (150 in Fig. 1 of Beigel) and converting to a digital signal (210 in Fig. 2A of Hiller).

13. Claims 25-27, 31-33, 37 and 38 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hickling (U.S. Patent No. 6,748,025, listed in the IDS dated 10/22/04) in view of Huff et al. (U.S. Patent No. 6,833,767, "Huff" hereinafter).

Regarding claim 25, Hickling teaches a radio receiver, comprising: a loop filter (80 in Fig. 4) configured to filter a combined signal; a clocked comparator (84 in Fig. 4; col. 7, lines 51-58) coupled with the loop filter, the clocked comparator configured to compare the filter combined signal to a predetermined reference when the comparator is enabled by a clock signal; pass a digital-to-analog converter (86 in Fig. 4) coupled with the clocked comparator, the digital-to-analog converter configured to convert the output of the clocked comparator to an analog signal; and a combiner (80 in Fig. 4) configured to receive a RF signal and combine it with the analog signal generated by the digital-to-analog converter in order to generate the combined signal.

Hickling does not specify that (a) the loop filter is a band-pass filter and (b) the predetermined reference is ground.

With respect to item (a), Huff teaches a loop filter may be any suitable filter, such as low-pass filter or band-pass filter (col. 5, lines 7-9). Therefore, it is clear the type of filter (low-pass or band-pass) used is merely a design option, which is dictated by the system requirement (e.g. which band the undesirable noise is located). The selection of

a band-pass filter to filter the undesirable signal located in a particular band is within the level of ordinary skill in the art. Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to use a band-pass filter in place of the loop filter so as to filter out the undesirable signal.

With respect to item (b), the selection of the predetermined reference to be ground is also a matter of design option, dictated by the system requirement. The ground reference at most is an optimum value for the predetermined reference. It would have been obvious to a person of ordinary skill in the art at the time the invention was made to set the predetermined reference to ground, since it has been held the discovering an optimum value of a result effective variable of a device involves only routine skill in the art. *In re Boesch*, *Eli f.2d* 272, 205 USPQ 215.

Regarding claim 26, Hickling further teaches filtering and decimation circuitry (66A or 66B in Fig. 3) configured to filter and decimate the output of the clocked comparator.

Regarding claim 27, Hickling further teaches a clock signal (CLK in Fig. 4, the circuit of Hickling will achieve the purpose since Hickling teaches the same structure as claimed) configured to clock the clocked comparator at a rate required to achieve a selected effective number of bits at the output of the filtering and decimation circuitry.

Regarding claim 31, Hickling teaches the claimed radio receiver (as applied to claim 25 above). Hickling also teaches an antenna (50 in Fig. 2) configured to receive a RF signal; a filter (52 in Fig. 2) coupled to the antenna, the filter configured to filter the

received RF signal; a amplifier (60 in Fig. 3) coupled with the filter, the amplifier configured to amplify the filtered RF signal.

Regarding claim 32, Hickling further teaches filtering and decimation circuitry (66A or 66B in Fig. 3) configured to filter and decimate the output of the clocked comparator.

Regarding claim 33, Hickling further teaches a clock signal (CLK in Fig. 4, the circuit of Hickling will achieve the purpose since Hickling teaches the same structure as claimed) configured to clock the clocked comparator at a rate required to achieve a selected effective number of bits at the output of the filtering and decimation circuitry.

Regarding claims 37 and 38, claims 37 and 38 are corresponding method claims of claims 25 and 27. Claims 37 and 38 are therefore rejected for the same reason applied to claims 25 and 27.

14. Claims 28 and 34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hickling (U.S. Patent No. 6,748,025, listed in the IDS dated 10/22/04) in view of Huff et al. (U.S. Patent No. 6,833,767, "Huff" hereinafter) as applied to claims 25 and 31 above, and further in view of Roo (U.S. Patent No. 6,459,246).

Hickling in view of Huff teaches the claimed subject matter, as applied to claims 25 and 31 above, but does not particularly teach that the combiner is passive. Roo teaches that a combiner can be active or passive (col. 2, line 66 through col. 3, line 2). It also well known that a passive combiner has the advantage of simple implementation. Therefore, it would have been obvious to a person of ordinary skill in the art at the time

Art Unit: 2638

the invention was made to use a passive combiner in the system of Hickling/Huff because a passive combiner is simple to implement.

### ***Allowable Subject Matter***

15. Claims 7, 14, 29, 30, 35 and 36 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

### ***Conclusion***

16. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Adachi et al. (U.S. Patent No. 6,298,726) teaches a low-pass filter (209 in Fig. 22A) coupled between an envelope detector (208 in Fig. 2A) and an A/D converter (210 in Fig. 2A).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Chieh M. Fan whose telephone number is (571) 272-3042. The examiner can normally be reached on Monday-Friday 8:00AM-5:30PM, Alternate Fridays off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kenneth Vanderpuye can be reached on (571) 272-3078. The fax phone

Art Unit: 2638

number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Chieh M Fan  
Primary Examiner  
Art Unit 2638

September 4, 2005